DEER HERD UNIT MANAGEMENT PLAN
Deer Herd Unit # 16
Central Mountains
February, 2006

BOUNDARY DESCRIPTION

Utah, Carbon, Emery, Juab, Sevier and Sanpete counties - Boundary begins at the junction of US-6 and I-15 in Spanish Fork; southeast on US-6 to SR-10 in Price; south on SR-10 to I-70; west on I-70 to US-50 at Salina; north on US-50 to I-15 at Scipio; north on I-15 to US-6 in Spanish Fork.

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP

	Yearlong range		Summer Range		Winter Range	
Ownership	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	0%	721980	73.8%	300717	28.3%
Bureau of Land Management	24	2.2%	28187	2.9%	224215	21.1%
Utah State Institutional Trust Lands	1039	93.4%	14980	1.5%	110636	10.4%
Native American Trust Lands	0	0%	0	0%	0	0%
Private	50	4.5%	198911	20.3%	353779	33.3%
Department of Defense	0	0%	0	0%	200	0%
USFWS Refuge	0	0%	0	0%	0	0%
National Parks	0	0%	0	0%	0	0%
Utah State Parks	0	0%	23	0%	116	0%
Utah Division of Wildlife Resources	0	0%	14774	1.5%	72704	6.8%
TOTAL	1113	100%	978855	100%	1062367	100%

UNIT MANAGEMENT GOALS

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.

- Maintain the population at a level that is within the short and long term carrying capacity of the available habitat, based on winter range trend studies conducted by the DWR every five years. Using the long term population objective as a guide, the short term objective will be adjusted according to the Desired Components Index (DCI). The DCI measured during range study surveys was created as an indicator of the general health of big game winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Decreases in DCI suggest that winter range carrying capacity has decreased.

POPULATION MANAGEMENT OBJECTIVES

< Target Winter Herd Size:

< **Long Term Objective**– Achieve a target population size of **60,600** (38,000 wintering deer on the Wasatch Plateau or Manti Mountain portion of the unit and 23,000 on the Nebo portion).

< **Short Term Objective** – Manage deer populations according to range conditions based on DCI scores on winter ranges. Where winter range is a limiting factor, reduce population objective by 20% on any subunit when weighted DCI score falls in to "poor" classification or below. On subunits where winter range condition is classified as "fair" or better deer populations will be allowed to expand toward current long-term objectives.

Deer winter range condition on Unit 16, Central Mountains, as indicated by DWR permanent range trend surveys.

SUBUNIT	DCI Score	Classification Range	classification	Current long-term population/objective	Proposed objective 2006-2011
Manti(16b& c)	46	40 – 57 Fair	Fair	31,000/38,000	38,000
Nebo(16a)	48	50 – 64 Fair	Poor to Fair	15,600/22,600	22,600*

*NOTE: The DCI score for the Nebo subunit is 48, the upper limit of the poor classification. The Range Study survey conducted in 2002 was during the worst of the drought years and conditions have greatly improved since. There are Antlerless hunts on the Nebo to address depredation problems in agricultural areas so the 20% reduction will not be applied. The next range study survey is due in 2007 and the DCI will be examined at that time. If the DCI indicates additional decline in winter range conditions, the Division will recommend a plan amendment to reduce the population objective on this subunit.

Management toward short-term objectives should consider the following;

- Management efforts should focus on improving deer habitat and carrying capacity.
- Declines in winter range carrying capacity are currently not entirely a result of over utilization by deer.
- Population control (if needed) and habitat improvement projects should be focused on areas where range degradation is most prevalent.
- Short term population objectives should be evaluated and updated every 5 years as new Range Trend data is compiled.
- Biologists should closely monitor winter ranges. If deer utilization is excessive and is causing range degradation and increased overwinter deer mortality, short-term objectives should be reduced.

< Herd Composition - A region-wide three year average postseason buck to doe ratio ranging from 15-20:100.

< Harvest - General Buck deer hunt regulations, using Archery, Rifle, and Muzzleloader hunts. Establishing a Buck hunter cap and Antlerless hunts for the Unit may be necessary to reach objectives.

POPULATION MANAGEMENT STRATEGIES

Monitoring

< Population Size - Utilizing harvest data, postseason and spring sex and age classifications and mortality estimates, a computer model has been developed to estimate winter population size.

< Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, uniform harvest surveys and field bag checks.

< Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey and the use of checking stations. Achieve the target population size by use of antlerless harvest using a variety of harvest methods and seasons.

Limiting Factors (May prevent achieving management objectives)

< Crop Depredation - Take all steps necessary to minimize depredation as prescribed by state law and DWR policy.

< Habitat – Winter range is a limiting factor for deer on this unit. Large portions of critical winter ranges experienced a large die-off in recent years and are in poor condition (See range trend summary below). This has resulted in a reduction of winter range carrying capacity. Much of this is due more to recent drought than over utilization by deer. Utilization of key shrub species on critical winter ranges will be closely monitored.

< Predation - Refer to DWR predator management policy. Conduct predator management activities when deer herd numbers are below population "triggers" indicated in DWR predator management plan.

- Assess need for control by predator species, geographic area and season of year.

- Seek assistance from USDA/Wildlife Services when deer populations are depressed and where there is a reasonable chance of gaining some relief through a predator control effort. Concentrate control efforts during and immediately prior to the fawning period.

- Recommend cougar harvest to benefit deer while maintaining the cougar as a valued resource in its own right.

< Highway Mortality - Cooperate with the Utah Dept. Of Transportation in construction of highway fences, passage structures and warning signs etc. Collect highway mortality data.

< Illegal Harvest - Should illegal kill become an identified and significant source of mortality attempt to develop specific preventive measures within the context of an action plan developed in cooperation with the Law Enforcement Section.

HABITAT MANAGEMENT OBJECTIVES

< Enhance forage production through direct range improvements throughout the unit on winter range to achieve population management objectives.

< Work with private landowners and federal, state, local and tribal governments to maintain and protect critical and existing winter range from future losses.

< Provide improved habitat security and escapement opportunities for deer.

< Provide a long-term continuing base of habitat quantity and quality sufficient to support the stated population objectives.

HABITAT MANAGEMENT STRATEGIES

< Continue to improve and restore sagebrush steppe habitats critical to deer according to DWR's Habitat Initiative. Cooperate with federal land management agencies and private landowners in carrying out habitat improvements such as reseedings, controlled burns, water developments etc. on public and private lands. The Habitat Initiative has a goal of improving 20,000 acres per year per region. A significant portion of these projects should occur on critical winter ranges on this unit.

< Work toward long term habitat protection and preservation through the use of agreements with federal agencies, local governments and the use of Conservation Easements etc. on private lands.

< Continue to monitor deer utilization, permanent range condition and trend studies located throughout the winter range.

< Implement the Habitat Management Plans that have been developed on the various DWR Wildlife Management Areas located on the unit.

< Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and escape or Asecurity@ areas.

PERMANENT RANGE TREND SUMMARIES (Added 2001)

Unit 16b (Southeast Region), Central Mountains Manti/Northeast Manti Subunit

The northeast Manti subunit experienced a substantial die-off of sagebrush at elevations below 6500 feet in 2002-03. There are 10 permanent range trend sites in the Northeast Manti subunit, all of which occur on winter range for both mule deer and elk. Most of these sites are sagebrush-grassland sites with Wyoming Big Sagebrush (*Artemisia tridentata wyomingensis*) and Black Sagebrush (*Artemisia nova*) predominating. Eight of these sites were last surveyed in 2004. Trends for soils, browse, and herbaceous understory are all down for all of the low elevation critical winter ranges on the subunit. Mid and upper elevation winter ranges show stable trends for browse, soils and herbaceous understory. Conditions on critical winter ranges improved in 2005 with above average precipitation but are still in very poor condition. Density and cover decreased on average by 60 to 70% on low elevation

critical winter ranges. This has reduced winter carrying capacity during heavy snow years. Furthermore, the vast majority of the mule deer winter range has had considerable oil and gas development. Four gas wells per section are placed across most of the winter range. Big game winter range use patterns will continue to change with further development. There is potential for winter range improvements on this subunit. Many of the dead and dying sagebrush stands need rehabilitation. Furthermore, pinion and juniper stands are prevalent and could be treated to improve browse and grass/forb production. Several drainages in the area have stagnant stands of unavailable browse and could also be treated with prescribed fire. Planting bare root stock of browse species during wet years could also improve production on some sites.

Unit 16c (Southeast Region), Central Mountains Manti/Southeast Manti Subunit

There are 26 permanent range trend study sites in this subunit. They all occur on winter range for both deer and elk, although sites vary considerably in their importance to each species. The sites are very diverse ranging in elevation from 6300 to 9000 feet and sample several different vegetative types. Eight sites sample pinyon-juniper chainings, seven sample mountain big sagebrush; six samples mixed mountain brush, two sample black sagebrush, two sample curlleaf mahogany, and one samples Wyoming big sagebrush. Trends for soil, browse and herbaceous understory are generally stable to upwards on this subunit. The mouths of Muddy Creek and Ferron Creek (Little Nelson Mountain study) and North Horn continue to be areas of range concern. Current and planned gas development on the lower sections of these winter ranges could have a negative impact on deer and elk populations on the unit

Unit 16c (Central Region), Central Mountains Manti/Southwest Manti Subunit

Fourteen trend studies were established in this management unit in 1989. All of these were reread in 1997 and 2002 except for the study at Julius Pasture (16C-10) which was not read in 2002 due to access problems. Eight of the 14 studies sample pinyon-juniper sites that have been chained and seeded. Four studies sample mountain brush communities, one study samples a sagebrush-grass community, and one study samples a high elevation meadow. Several of the studies in this management unit would be good candidates for habitat restoration projects. The majority of the range trend studies in this unit monitor previously treated and seeded pinyon-juniper sites that have limited preferred browse populations. Some of these sites are showing an increasing overstory of pinyon,
juniper, and oak. The increasing pinyon, juniper, and oak canopy negatively impact the key browse component. Competition between preferred browse populations and increasing canopy from trees is further exacerbated by the drought conditions which the state has experienced for the past several years. A common trend throughout the unit in 2002 was declining nested frequency values for herbaceous species. Sum of nested frequency of perennial grasses decreased on 11 of the 13 sites, while perennial forbs had lower sum of nested frequency values on 12 of the 13 sites in 2002. These declines are expected with the drought conditions experienced during 2001 and 2002. The forb component on many of the sites, especially the treated pinyon-juniper sites, was already sparse and is even more so now. Cheatgrass declined in nested frequency on all of the studies where it was sampled in 2002 (11 sites). However, cheatgrass was not very common on any of the sites except for at the Cove Creek study (16C-39) prior to the 2002 reading. Herbaceous trends were downward on 8 of the 13 sites in 2002 due to decreases in perennial grass and forb abundance. These downward trends are driven by the drought conditions and should improve as precipitation returns to more normal

patterns. Key browse populations are of critical importance on the winter ranges in this unit. Browse trends were downward on 5 of the 13 sites in 2002 which is acceptable, especially with drought. However, unit-wide changes in key browse parameters that did not necessarily always translate into downward trends need to be mentioned here. These include the following: increased decadence on 55% of the sites, increased use on 73% of the sites, reduced vigor on 64% of the sites, and decreased recruitment from young plants on 73% of the sites. The combination of these changes and the fact that browse populations are already limited is cause for concern for browse populations in the future.

Unit 16b (Central Region), Central Mountains Manti /Northwest Manti Subunit

Trend studies in this management unit were established in 1989 and reread in 1997 and 2002. Two studies, East Dairy Fork (16B-7) and Oak Creek (16B-12) were not sampled in 2002. The studies in this unit primarily monitor sagebrush, mountain brush, and chained pinyon-juniper communities. Unit wide vegetation trends during the 2002 reading include changes in both the browse component as well as the herbaceous understory. Browse trends were stable on 7 sites, downward on 3 sites, and upward on 1 site in 2002. The key browse on some studies, especially those where big sagebrush is present, showed increases in decadence and poor vigor. Herbaceous understory trends were downward on 8 sites and stable on 4 sites. The major change occurring with herbaceous species was the reduction in perennial forbs. All 12 studies that were sampled in 2002 showed decreases in the sum of nested frequency for perennial forbs. Perennial grasses remained stable or increased in nested frequency on 7 sites, and decreased on 5 sites. Annual species showed mixed trends as far as increases/decreases are concerned. The number of herbaceous species sampled also declined on many sites in 2002. The loss of abundance and number of species sampled in 2002 is a direct result of the drought conditions experienced in 2001 and 2002.

Unit 16a (Central Region), Central Mountains Nebo

Twenty trend studies occur within the unit. Fifteen trend studies were established in 1983. All sites were reread in 1989, and an additional 5 sites were established at that time. Nineteen sites were reread in 2002.One site, Strawberry Highline Canal, was suspended. It occurs in an area dominated by oak brush with shrinking sagebrush interspaces. The area receives little deer or elk use. All sites in the unit sample winter range. However, trend studies at Nebo Creek (#5), Rees Flat (#11), and Big Hollow (#14) occur in the upper reaches of the winter range and are unavailable during severe winters due to deep snow. Most of the trend studies on the unit sample the critical winter ranges on the Nebo unit between I-15 and the WasatchMountains.Trends are down for soil, browse, and herbaceous understories for 3 sites at Santaquin Bench (#2), Nebo Creek (#5), and Birch Creek (#9), due to 3 separate wild fires which burned on Mount Nebo in 2001. All nonsproutingshrubs were completely eliminated. Soil trends were slightly down on 3 additional sites, Wash Canyon Canyon (#4), Willow Creek (#7), and Gardner Canyon (#8). Browse trends were slightly down at North Canyon (#10), Steele Ranch (#13), and Chicken Creek (#17). Herbaceous trends were stable to improving on most sites except for the 3 burned sites and Gardner Canyon (#8) and Deep Creek (#18).Wildfire continues to be a concern on several other sites in the unit due to abundance of winter annuals, primarily cheatgrass. Four sites on the Nebo Unit, Willow Creek (#7), Gardner Canyon (#8), Tithing Mountain (#12), and Levan Farm Chaining (#16), have not yet burned but contain an abundance of cheatgrass.Three of these sites support cliffrose and the other is sagebrush, none of which resprout after fire. Birch Creek burned in 2001,

yet the site still supports enough cheatgrass to continue as a fire hazard. Most of the shrubs were burned on this site but serviceberry is resprouting. Perennial grasses in the herbaceous understories on Unit 16A have, on average, remained relatively stable in sum of nested frequency and cover. Sum of nested frequency of forbs has declined but the average number of species sampled per site has remained similar. Even with drought conditions for the past few years, the annual cheatgrass has declined only slightly in cover and nested frequency since 1997. The poor value perennial, bulbous bluegrass, has increased significantly on several sites. Broom snakeweed is abundant on many sites in the unit. It has declined dramatically on several sites due to drought conditions. In addition, the surviving plants show increased decadence.

Duration of Plan

This unit management plan was approved by the Wildlife Board on _____ and will be in effect for five years from that date, or until amended.